

REMARKS**Summary of the Office Action**

In the Office Action, claims 5-8 and 13-16 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

Claims 1 and 3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,654,057 to *Kitayama, et al.*

Claims 9 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kitayama, et al.*

Claims 5-8 and 13-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,606,438 to *Margalit, et al.* in view of *Kitayama, et al.*

Summary of the Response to the Office Action

Applicant amends claims 1 and 9 to further define the invention, claims 17 and 20-22 are withdrawn from consideration, and claims 1, 3, 5-9 and 13-16 remain pending for further consideration.

All Subject Matter Complies With 35 U.S.C. § 112, first paragraph

The Office Action indicates that claims 5-8 and 13-16 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. This rejection is respectfully traversed.

The Office Action takes the position that the protective layer “fails to disclose an organic layer which has compressive stress.” Applicant respectfully submits that the organic protective layer is configured to impart a compressive stress upon the glass substrate.

Applicant respectfully asserts that one of ordinary skill in the art would know that the organic layer does not have a compressive stress in and of itself. In the present invention, an organic layer is formed on the surface of the glass substrate and then irradiated with an ultraviolet light. The ultraviolet light cures the organic layer and causes the organic layer to shrink, thereby imparting a compressive stress to the underlying glass substrate. See the specification at least at page 6, lines 16-22 and page 7, lines 13-21.

Independent claims 1 and 9 state that a “transparent protective layer formed on the chemically etched outer surface of . . . [a] substrate . . . has a configuration which imparts a compressive stress to the outer surface.” Claims 5-8 and 13-16 further define the protective layer as an organic layer. Therefore, contrary to the Office Action’s assertion, the claims do disclose an organic layer imparting a compressive stress upon the glass substrate. Moreover, as demonstrated above, the specification also supports the fact that both an inorganic and organic layer may impart a compressive stress upon the glass substrate.

Applicant asserts that the specification has been misread and that one of ordinary skill in the art would have understood that these portions of the specification, when read in context with the entire specification, support the claimed features. Furthermore, it is respectfully submitted that Applicant’s specification enables one of ordinary skill in the art to make and use the claimed invention. Accordingly, the rejection under 35 U.S.C. § 112, first paragraph, should be withdrawn.

All Subject Matter Complies With 35 U.S.C. § 102(b)

Claims 1 and 3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,654,057 to *Kitayama, et al.* Applicant respectfully traverses the rejections for the following reasons.

In regards to independent claim 1, Applicant respectfully submits that the Office Action has not established that *Kitayama et al.* anticipates each and every feature of Applicant's claimed invention and that all rejections under 35 U.S.C. § 102(b) should be withdrawn. Namely, Applicant contends that independent claim 1 recites the features of "at least one transparent protective layer formed on the chemically etched outer surface of at least one of the first glass substrate and the second glass substrate, wherein the protective layer has a configuration which imparts a compressive stress to the outer surface of at least one of the first glass substrate and the second glass substrate to prevent cracks which may occur due to an external impact," are not disclosed by *Kitayama et al.*

Kitayama et al. discloses a glass substrate manufacturing method applicable to magnetic recording disk glass substrates. The specification discloses a method for flattening a glass substrate which includes forming a film of a solution on the surface of a sheet of glass using a down-drawn method. The specification also discloses a method for chemically strengthening a glass substrate wherein a glass substrate is immersed in a chemical reinforcement solution, heated, ions between the solution and the surface of the glass substrate are exchanged, the glass substrate is removed from the reinforcement solution and annealed to a temperature higher than the crystallization temperature of a molten salt, and finally the substrate is cleaned with a cleaning agent containing acid. See *Kitayama et al.* at col. 5, lines 12-22 and 39-50.

The Office Action states that *Kitayama et al.* shows a "chemically reinforced glass substrate [having] . . . a compressive stress in the surface thereof (column 6, lines 60-65) thus disclosing that the chemically changed layer has a configuration which imparts a compressive stress to the surface of the glass substrate." Contrary to this assertion, *Kitayama et al.* shows only that the glass substrate itself is chemically changed to create compressive stress in its outer

layer. *Kitayama et al.* does not teach that an outside protective layer imparts a compressive stress to the glass substrate. See *Kitayama et al.* at column 22, lines 53 through column 23, line 26, and column 6, lines 60-65. While it is true that *Kitayama et al.* teaches that a glass substrate may be chemically changed through ion exchange with a heated solution such that it creates a compressive stress in its outer layer, it does not teach that an outside protective layer imparts compressive stress on the surface of a glass substrate.

Further, assuming that the chemically strengthened outer glass layer of *Kitayama et al.* is a separate layer in compression, *Kitayama et al.* would teach away from the present invention. *Kitayama et al.* cannot be analogous to the protective layer of the present invention because the protective layer has a tensile force that imparts a compressive stress to the glass substrate adjacent to it, while the chemically strengthened outer glass layer of *Kitayama et al.* is in compression and imparts a tensile force to the glass layer adjacent to it. As such, *Kitayama et al.* teaches away from the present invention. In fact, *Kitayama et al.* states that a “chemically reinforced glass substrate has a compressive stress in the surface thereof and internally a tensile stress,” exactly opposite to the desired configuration of the present invention. See col. 6, lines 60-62 of *Kitayama et al.*

As pointed out in MPEP § 2131, a claim is anticipated by a prior art reference only if each and every element as set forth in the claim is found. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051 (Fed. Cir. 1987). Therefore, Applicant respectfully asserts that the rejection under 35 U.S.C. § 102(b) should be withdrawn because *Kitayama et al.* does not teach or suggest each feature of independent claim 1. Additionally, Applicant respectfully submits that dependent claim 3 is also allowable insofar as it recites the patentable combinations of features

recited in claim 1, as well as reciting additional features that further distinguish over the applied prior art.

All Subject Matter Complies With 35 U.S.C. § 103(a)

Claims 9 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kitayama, et al.* Applicant respectfully traverses the rejections for the following reasons.

Independent claim 9, as amended, recites the features of “at least one transparent protective layer formed on the chemically etched outer surface of at least one of the first glass substrate and the second glass substrate, wherein the protective layer has a configuration which imparts a compressive stress to the outer surface of at least one of the first glass substrate and the second glass substrate to prevent cracks which may occur due to an external impact.”

In order to establish a *prima facie* case of obviousness, the Office must satisfy three requirements. First, "the prior art reference, or references when combined, must teach or suggest *all* the claim limitations." (emphasis added). Second, the Office must show that there is "some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings." And third, "there must be a reasonable expectation of success." M.P.E.P. § 2142.

As argued above with respect to claim 1, *Kitayama et al.* does not disclose the claimed features of “at least one transparent protective layer formed on the chemically etched outer surface of at least one of the first glass substrate and the second glass substrate, wherein the protective layer has a configuration which imparts a compressive stress to the outer surface of at least one of the first glass substrate and the second glass substrate to prevent cracks which may occur due to an external impact.” Thus, the Office Action fails to establish a *prima facie* case of obviousness as to claims 9 and 11 at least because *Kitayama et al.* does not show all the claimed

features. Therefore, the Applicant respectfully requests that the rejection of claims 9 and 11 under 35 U.S.C. § 103(a) be withdrawn.

All Subject Matter Complies With 35 U.S.C. § 103(a)

Claims 5-8 and 13-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,606,438 to *Margalit, et al.* in view of *Kitayama, et al.* Applicant respectfully traverses the rejections for the following reasons.

Margalit et al. shows a liquid crystal display (LCD) sandwich (30, 31), a layer of adhesive material (35) that extends continuously across a surface of the LCD sandwich, and a layer of rigid transparent material (*e.g.*, glass or acrylic) that is mounted facing the LCD sandwich and is bonded to the LCD sandwich by the layer of adhesive material. See the *Margalit et al.* Abstract.

Neither *Kitayama et al.* nor *Margalit et al.* teach or suggest, whether alone or in combination, at least the “one transparent protective layer formed on the chemically etched outer surface of at least one of the first glass substrate and the second glass substrate, wherein the protective layer has a configuration which imparts a compressive stress to the outer surface of at least one of the first glass substrate and the second glass substrate to prevent cracks which may occur due to an external impact,” features recited in independent claims 1 and 9. These features are simply absent from both references.

Margalit et al. utilizes an adhesive layer (35) to affix the acrylic or glass layer (36) to the outside surfaces of the LCD sandwich (30, 31). No transparent protective layer is “formed on” the outer surface of the substrate as recited in claims 1 and 9. The glass layer (36) is merely glued to the LCD (30, 31) and is not formed on it. Moreover, *Margalit et al.* does not teach or

suggest that either the adhesive layer (35) or the outside glass layer (36) imparts a compressive stress to the underlying glass layers of the LCD (30, 31). In fact, the Office Action states that the glass layer (36) “is the only contact point for introducing stress into the glass substrates.” It is notable that the Office Action does not suggest that the glass layer (36) itself imparts stress to the LCD (30, 31) after being attached to it.

Furthermore, *Kitayama et al.* does not teach or suggest forming a transparent protective layer on a chemically etched outer surface of a glass substrate that imparts a compressive stress to the outer surface of the glass substrate. Rather, *Kitayama et al.* teaches a method for chemically strengthening a glass substrate wherein a glass substrate is immersed in a chemical reinforcement solution, heated, ions are exchanged, removed from solution, annealed, and finally cleaned with a cleaning agent containing acid. See *Kitayama et al.* at col. 5, lines 39-50.

As demonstrated above, Applicant respectfully submits that the Office Action has not established a *prima facie* case of obviousness at least because neither *Margalit et al.* nor *Kitayama et al.*, either alone or in combination, teaches or suggests all the recited features of independent claims 1 and 9. Namely, neither *Margalit et al.* nor *Kitayama et al.* teach or suggest “at least one transparent protective layer formed on the chemically etched outer surface of at least one of the first glass substrate and the second glass substrate, wherein the protective layer has a configuration which imparts a compressive stress to the outer surface of at least one of the first glass substrate and the second glass substrate to prevent cracks which may occur due to an external impact.” Therefore, Applicant respectfully asserts that the rejection under 35 U.S.C. § 103(a) should be withdrawn. Additionally, it is further respectfully submitted that dependent claims 5-8 and 13-16 are also allowable insofar as they recite the patentable combinations of

features recited in independent claims 1 and 9, as well as reciting additional features that further distinguish over the applied art.

CONCLUSION

In view of the foregoing, Applicant respectfully requests reconsideration and the timely allowance of all pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicant's undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such an extension is requested, and the fee should also be charged to our Deposit Account.

Respectfully submitted,

MORGAN, LEWIS & BOCKIUS LLP

By: Mary Jane Boswell
Mary Jane Boswell
Reg. No. 33,652

Dated: October 16, 2003

CUSTOMER NO. 09629
MORGAN, LEWIS & BOCKIUS LLP
1111 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
Telephone: (202) 739-3000
Facsimile: (202) 739-3001

MJB/DEC/fdb